COMMAND SAFETY OFFICE
Risk Management Training
2003

Everyday, everywhere, TACOM touches every soldier

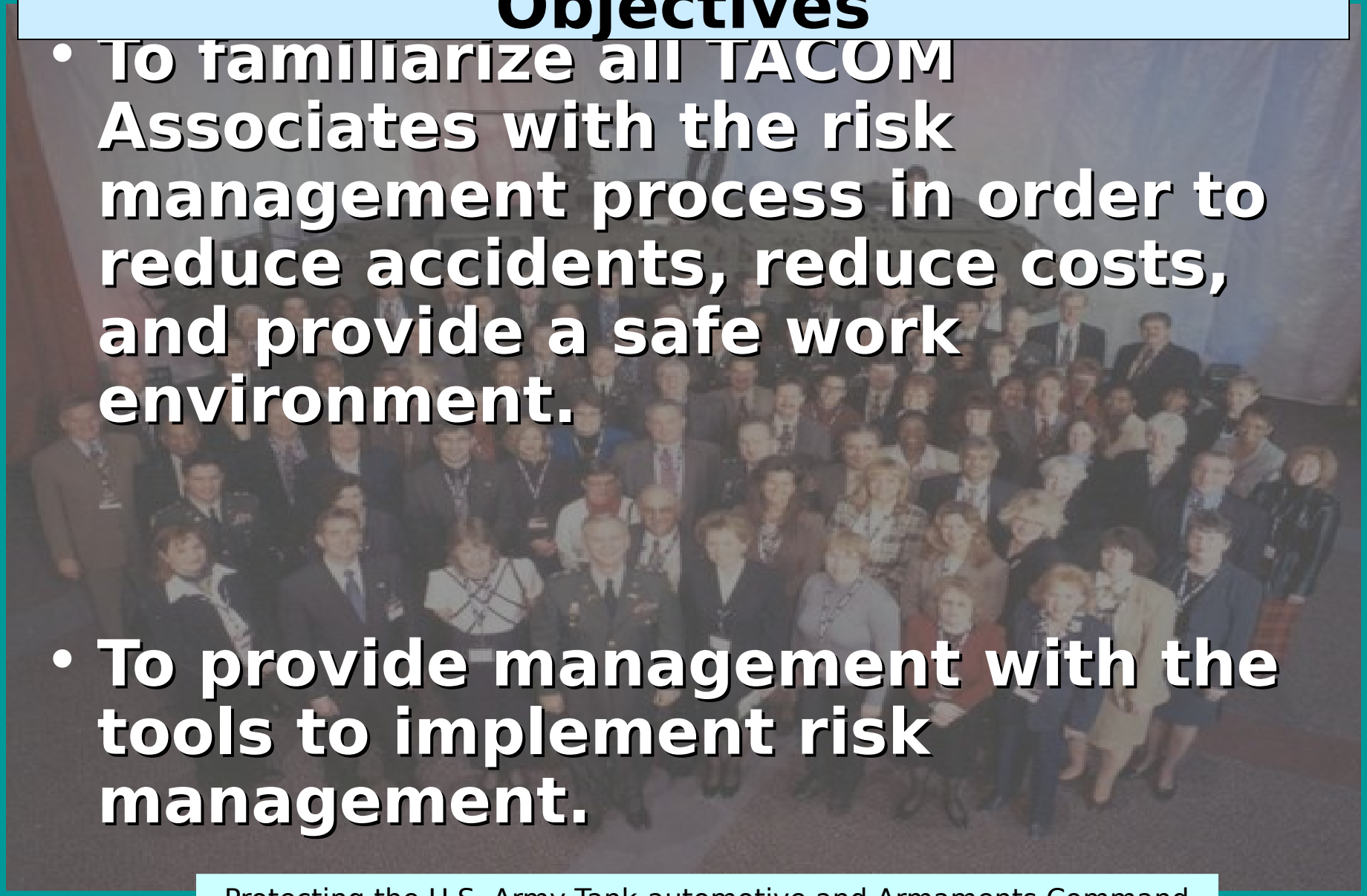
U.S. Army Tank-automotive & Armaments Command (TACOM

Risk Management Training

Our challenge is to integrate risk management in every task we undertake.

Risk management is fundamental in developing a confident, competent and safe workforce.

Risk Management Training Objectives



- To familiarize all TACOM Associates with the risk management process in order to reduce accidents, reduce costs, and provide a safe work environment.
- To provide management with the tools to implement risk management.

Risk Management - Defined

- A systematic five-step process of identifying, assessing, and controlling risks that can be applied to all aspects of our work.

First two steps involve "RISK ASSESSMENT:"

Step 1. Hazard Identification

Step 2. Hazard Analysis

Last three steps involve "RISK MITIGATION:"

Step 3. Risk Planning – Develop Controls & Make Risk Decisions

Step 4. Risk Controlling – Implement Controls

Step 5. Risk Monitoring – Supervise & Evaluate

Each of These Steps Will Be Discussed In More Detail

The Risk Management 5-Step Process

Risk Management – Further defined

RISK MANAGEMENT IS A DISCIPLINED, ORGANIZED, AND LOGICAL DECISION MAKING PROCESS FOR IDENTYIFYING, EVALUATING AND CONTROLLING HAZARDS.

WITH TRAINING AND PRACTICE, PERSONNEL WILL BE BETTER ABLE TO SPOT HAZARDS, ANALYZE RISK AND MAKE RISK DECISIONS AT THE APPROPRIATE LEVELS WITHIN THE ORGANIZATION.

ALL WORK AND DAILY ROUTINES INVOLVE RISK. THESE TASKS REQUIRE DECISIONS THAT INCLUDE ASSESSING AND MANAGING HAZARDS.

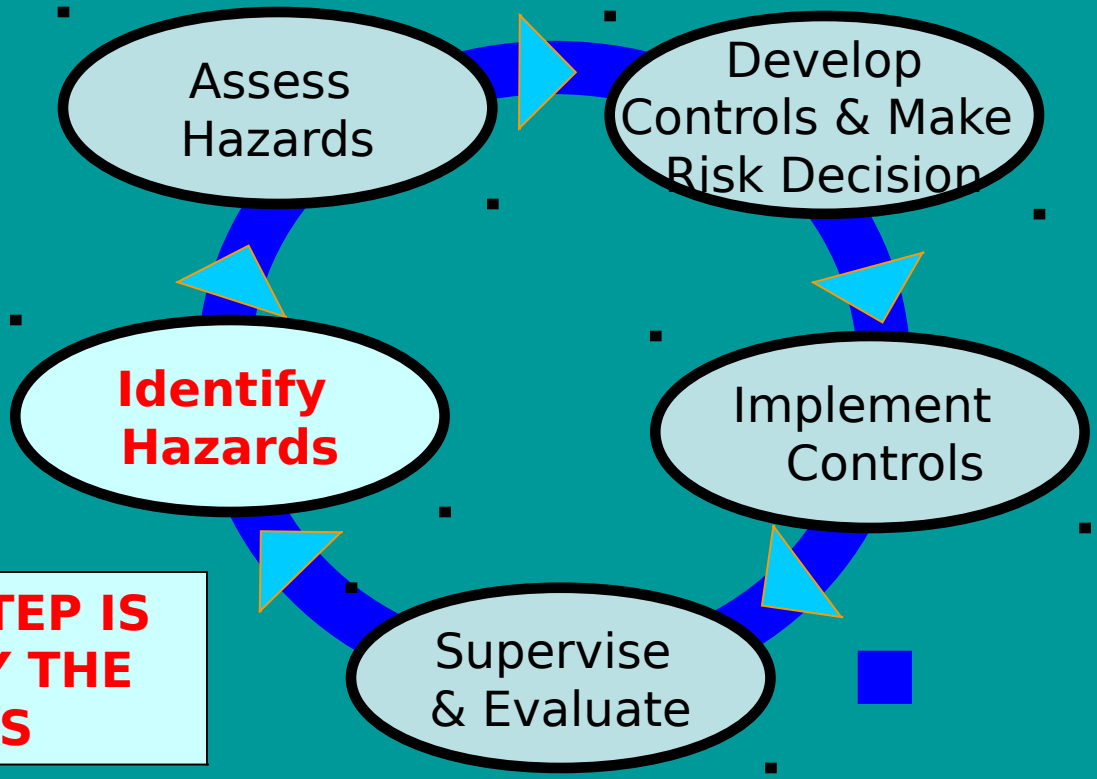
ALL TACOM EMPLOYEES ARE RESPONSIBLE FOR IDENTIFYING POTENTIAL RISKS AND TAKING APPROPRIATE ACTIONS TO MINIMIZE THEM.

Step 1 - Identify the Hazards

Sierra Army Depot

Protecting the U.S. Army Tank-automotive and Armaments Command

Step 1 - Identify the Hazards



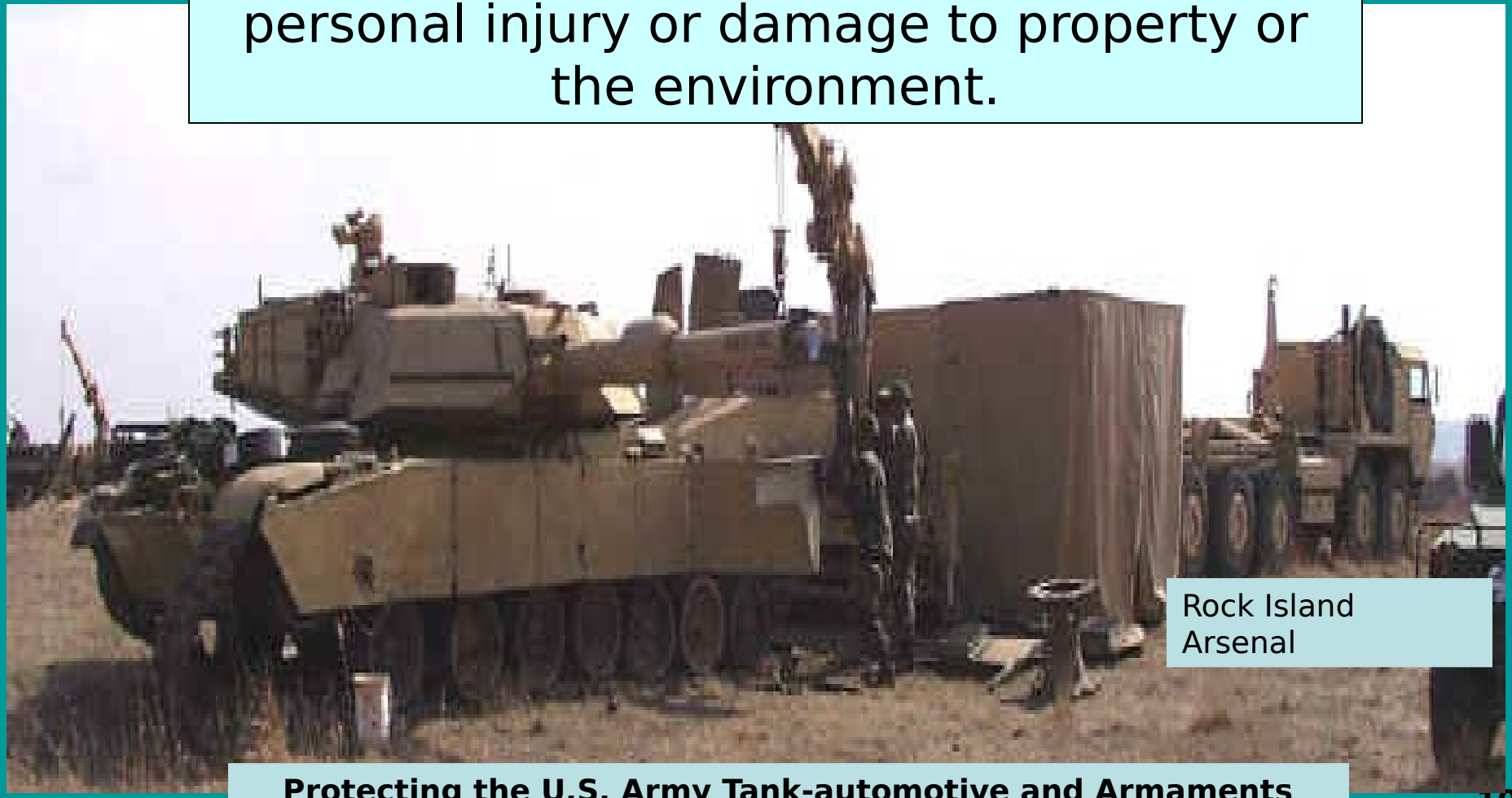
THE FIRST STEP IS TO IDENTIFY THE HAZARDS

What is a Hazard?

<u>Hazard</u> - any actual or potential condition that can cause injury, illness, or death of personnel, or damage to or loss of equipment, property or the environment.

Identify Hazards

The objective of this step is to identify those hazards most likely to result in personal injury or damage to property or the environment.



Rock Island Arsenal

How Do You Identify Hazards?

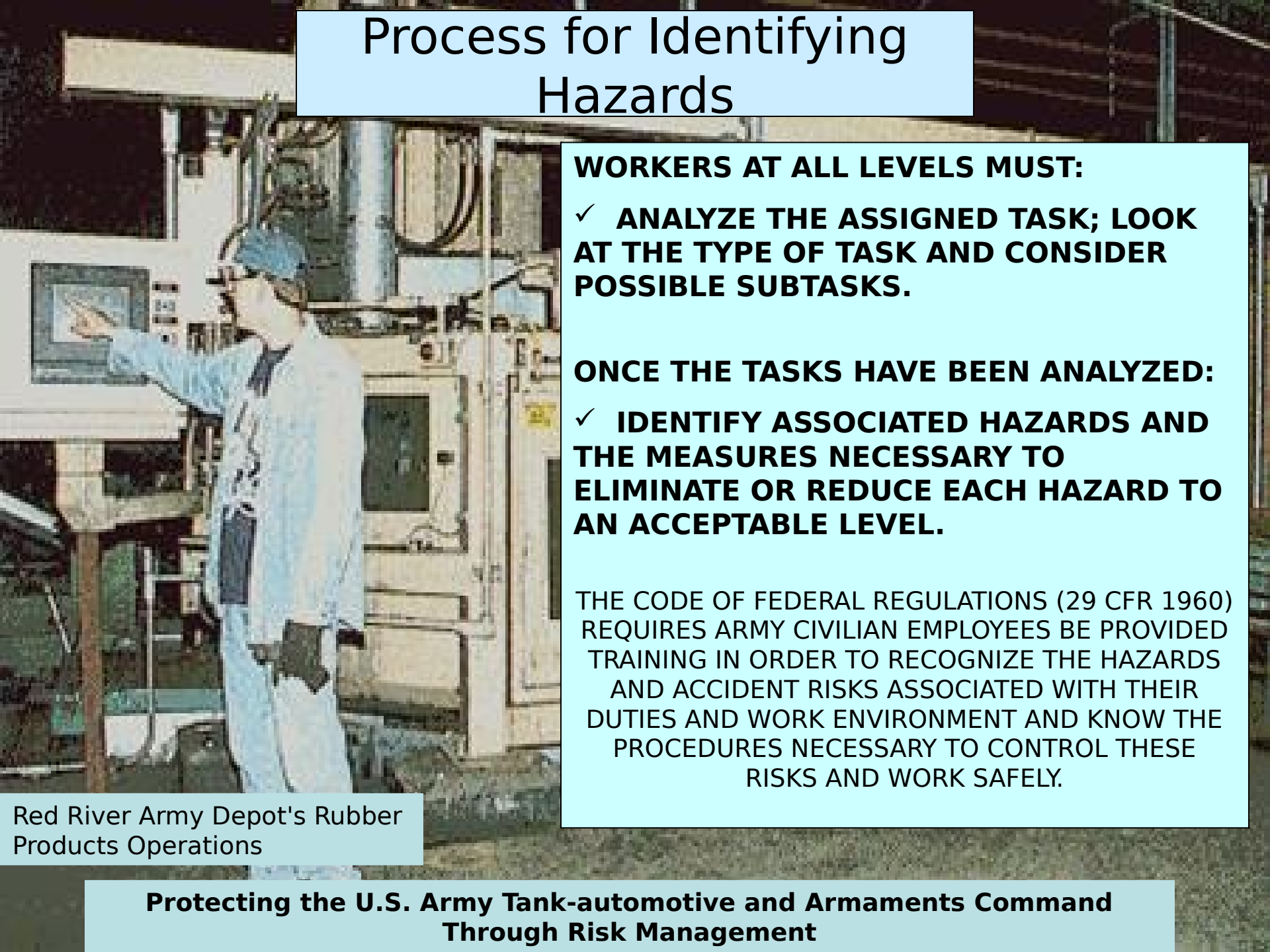
A FEW SOURCES FOR IDENTIFYING HAZARDS:

- Experience / Lessons Learned
- Brain Storming
- Safety Inspections
- Publications
- Accident Information
- Scenario Thinking – What if?

THERE IS A GREAT WEALTH OF EXPERIENCE IN OUR WORKFORCE. EXPERIENCE THAT, OVER THE YEARS, HAS INTUITIVELY CONDUCTED RISK ASSESSMENTS OF THE VAROUS TASKS WE PERFORM. WE NEED TO CONTINUE TO USE THAT EXPERIENCE.

BEFORE A TASK... BRAIN STORM THE VARIOUS HAZARDS THAT EXIST AND DISCUSS HOW RISK FROM THESE HAZARDS MIGHT BE CONTROLLED. DOCUMENT THIS PROCESS.

Process for Identifying Hazards



WORKERS AT ALL LEVELS MUST:

- ✓ **ANALYZE THE ASSIGNED TASK; LOOK AT THE TYPE OF TASK AND CONSIDER POSSIBLE SUBTASKS.**

ONCE THE TASKS HAVE BEEN ANALYZED:

- ✓ **IDENTIFY ASSOCIATED HAZARDS AND THE MEASURES NECESSARY TO ELIMINATE OR REDUCE EACH HAZARD TO AN ACCEPTABLE LEVEL.**

THE CODE OF FEDERAL REGULATIONS (29 CFR 1960) REQUIRES ARMY CIVILIAN EMPLOYEES BE PROVIDED TRAINING IN ORDER TO RECOGNIZE THE HAZARDS AND ACCIDENT RISKS ASSOCIATED WITH THEIR DUTIES AND WORK ENVIRONMENT AND KNOW THE PROCEDURES NECESSARY TO CONTROL THESE RISKS AND WORK SAFELY.

Red River Army Depot's Rubber Products Operations

Do you see any hazards in these photos?

Practice Scenario Step 1

Moving a CO2 Cylinder

You need to move a CO2 cylinder (approx.. wt. 200 lbs.) from the storage locker outside the powerhouse to a Main Unit Generator located one floor away. The cylinder will need to be transited down two flights of stairs and carried 150 ft. for installation.

Step 1. Identify the Hazards

Can You Identify The Hazards?

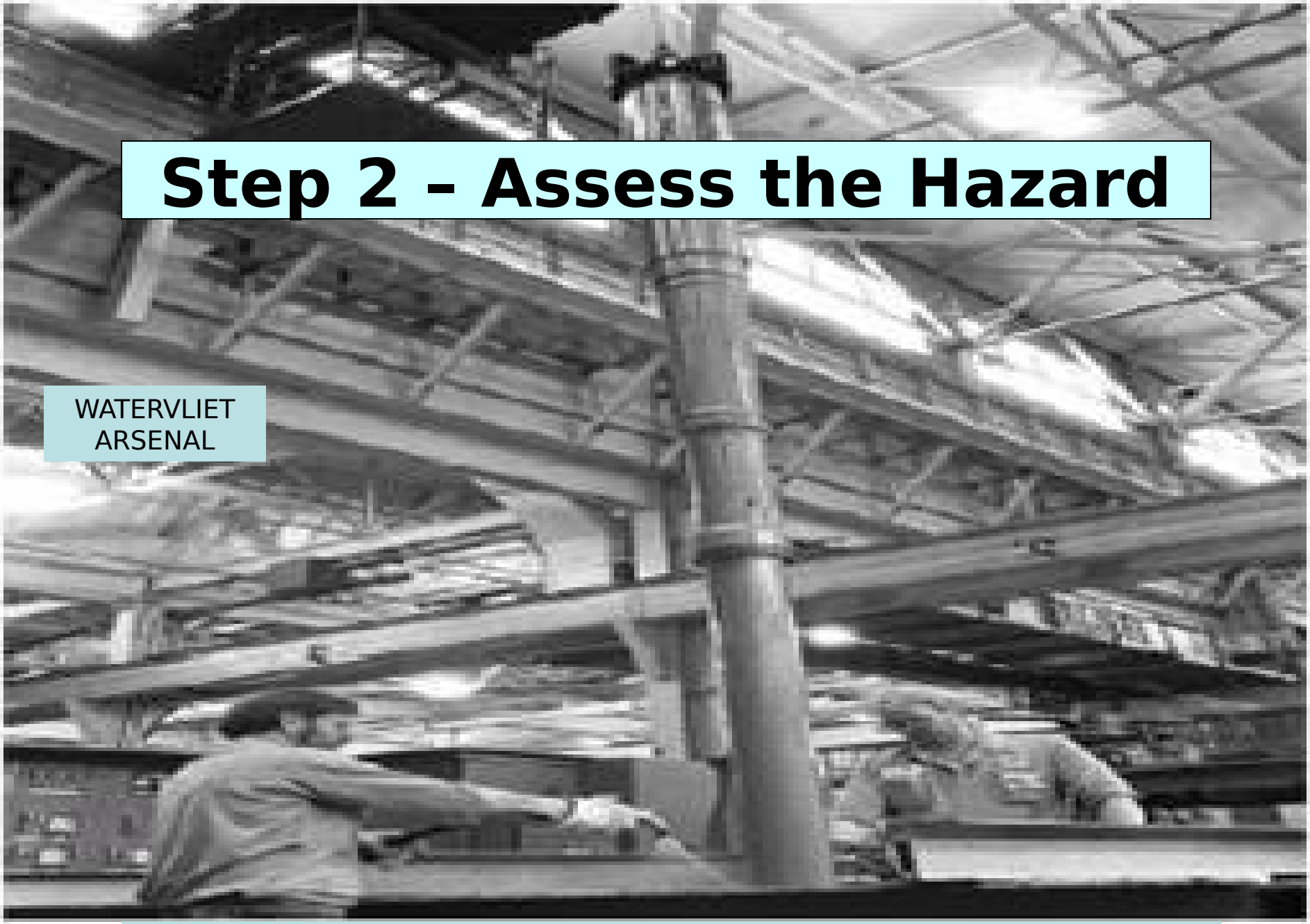
- ?
- ?
- ?
- ?
- ?
- ?

Identify the Hazards

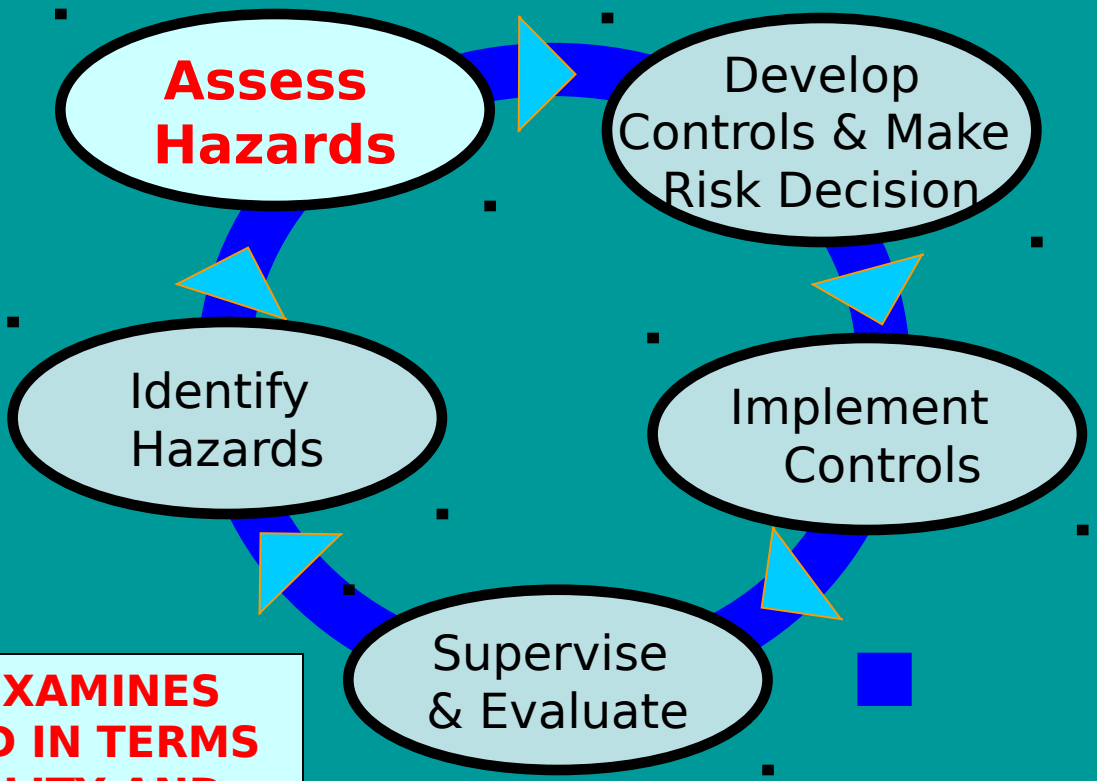
The following hazards were identified:

- Lifting – potential for personnel injury
- Rigging or supports – possible failure
- Missile hazard (should the bottle drop)
  - This has happened at a TACOM Installation with severe injuries.
- Slip, Trip, Fall
- Equipment (forklift) – mechanical or operational failure

Step 2 – Assess the Hazard



Step 2 - Assess the Hazard



THIS STEP EXAMINES EACH HAZARD IN TERMS OF PROBABILITY AND SEVERITY TO DETERMINE THE RISK LEVEL.

How do you Assess Hazards?

SOME TOOLS FOR ASSESSING HAZARDS:

- Historical Accident / Injury Data
- Intuitive Analysis of the Task
- Judgment
- Common Sense
- Activity Hazard Analysis

Assessment involves the use of quantitative and qualitative measures to determine the level of risk associated with a specific hazard.

Risk levels are indexed according to the risk assessment matrix.

Assessing the Hazards

Assess the impact of each hazard in terms of potential loss and cost based on the **probability** and **severity** should an incident occur.

Definitions:

- ***Probability*** - how likely is an accident from the hazard? Ranges from Frequent to Unlikely.
- ***Severity*** - how much damage to the daily mission will result from an accident occurrence? Ranges from Catastrophic to Negligible.

Risk Assessment
Probability and Severity

- Probability is effected by exposure. Repeated exposure to a hazard greatly increases the likelihood of an accident.

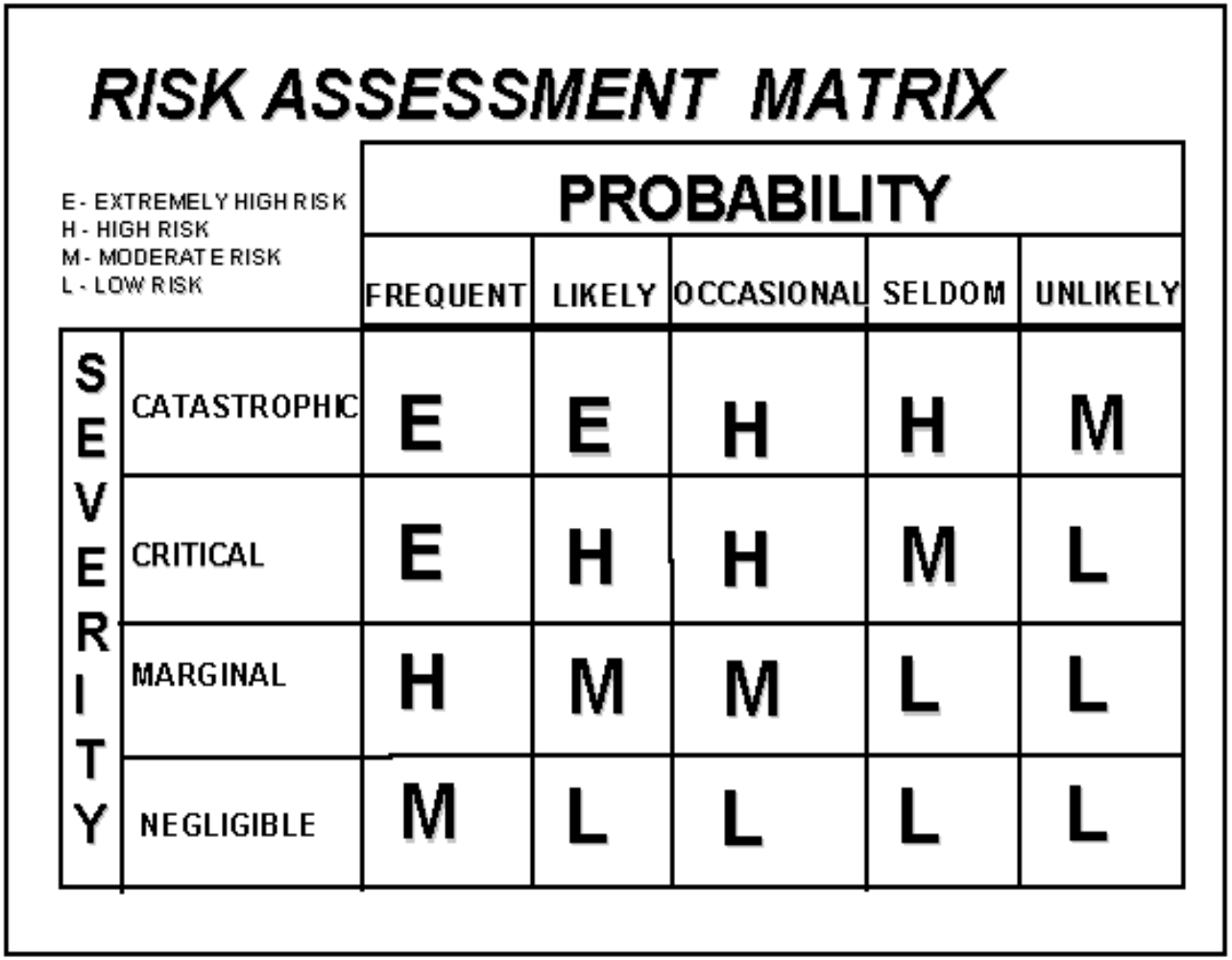
- Probability assignments are expressed in terms of time, proximity, volume, or repetition.

- Severity of the hazard is determined in terms of its potential impact on the people, equipment, or mission.

- Severity assignments should be based upon the worst possible outcome that can reasonably be expected.

Once you have assessed all hazards, order by priority from the highest to the lowest.

Assessment Tool



RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY				
	FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

To assess the risk, determine the probability and severity of the hazard.

Then use the Risk Assessment Matrix to determine the level of risk.

The risk assessment Index is where the probability and severity intersect on the matrix chart.

Probability

DEGREE OF PROBABILITY:

- **FREQUENT** – Occurs often in the life of a system; continuously experienced.
- **LIKELY** – Occurs several times in the life of a system; occurs frequently.
- **OCCASIONAL** – Will occur in the life of the system; occurs sporadically.
- **SELDOM** – Unlikely but can expect to occur in the life of the system; occurs seldom.
- **UNLIKELY** – Unlikely but could occur in the life of a system; occurs very rarely.

Severity

DEGREE OF SEVERITY:

- **CATASTROPHIC** – Mission failure, death or permanent disabling injury, or damage to property (>$200,000).
- **CRITICAL** – Major mission degradation, severe injury, occupational illness or major system damage.
- **MARGINAL** – Minor mission degradation, injury, minor occupational illness, or minor system damage.
- **NEGLIGIBLE** – Less than minor mission degradation, injury, occupational illness, or minor system damage.

Practice Scenario Continued – Step 2

Moving a CO2 Cylinder

You need to move a CO2 cylinder (approx.. wt. 200 lbs.) from the storage locker outside the powerhouse to a Main Unit Generator located one floor away. The cylinder will need to be transited down two flights of stairs and carried 150 ft. for installation.

You already identified the hazards (step 1), now you need to assess each hazard (step 2).

How to Assess the Hazards…

Using the Risk Assessment Matrix, assign codes to your hazards. Use this tool to assess the risk level. For example, a severity rating of critical and a probability rating of likely would result in a Risk Assessment Code of H.

- Lifting Hazard ?
- Missile Hazard ?
- Rigging Hazard ?
- Slip, Trip, Fall ?
- Equipment operation ?

RISK ASSESSMENT MATRIX

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CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

Assess the Hazards

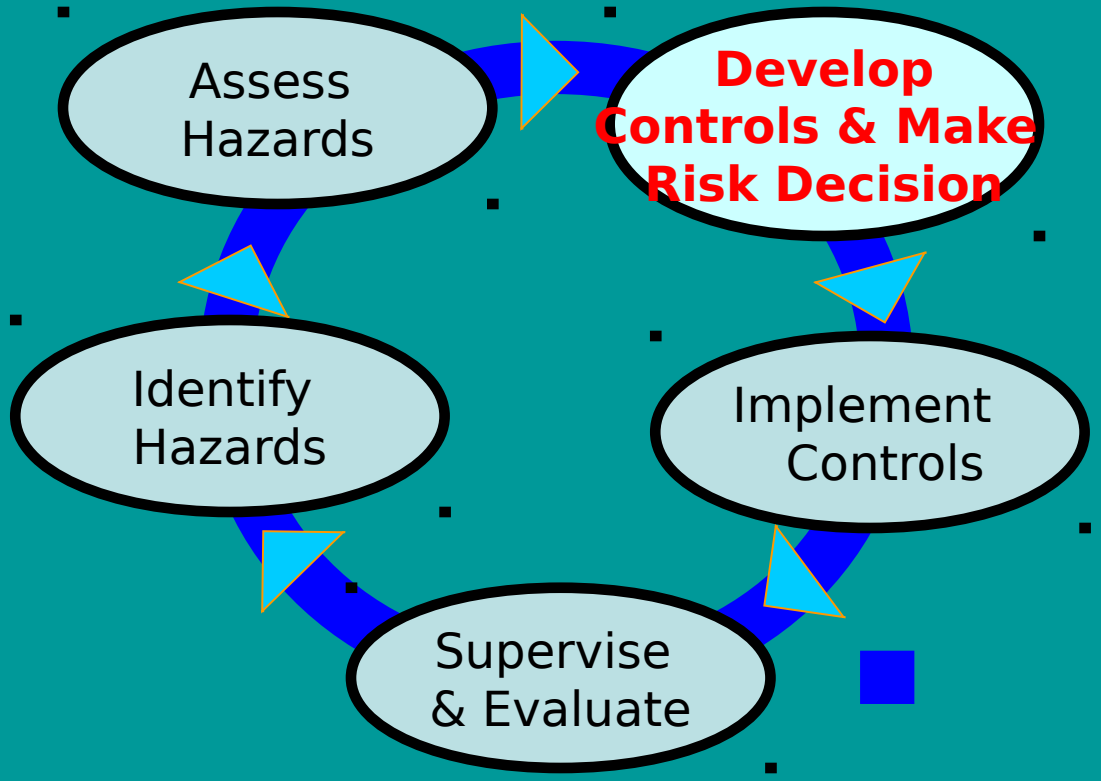
The following ratings were assigned to the hazards:

- Lifting Hazard H
- Rigging Hazard M
- Missile Hazard H
- Slip, Trip, Fall H
- Equipment operation L

Step 3 - Develop Controls & Make Decisions

US ARMY GARRISON SELFRIDGE

Step 3 - Develop Controls & Make Decisions



IN THIS STEP WE DEVELOP CONTROLS TO ELIMINATE OR REDUCE RISK AND DECIDE WHICH CONTROLS TO USE OR WHICH RISK TO ACCEPT.

Step 3 - Develop Controls & Make Decisions

Risk Planning and Developing Controls

Starting with the highest-risk hazards as assessed in Step 2, identify as many control options as possible for all hazards.

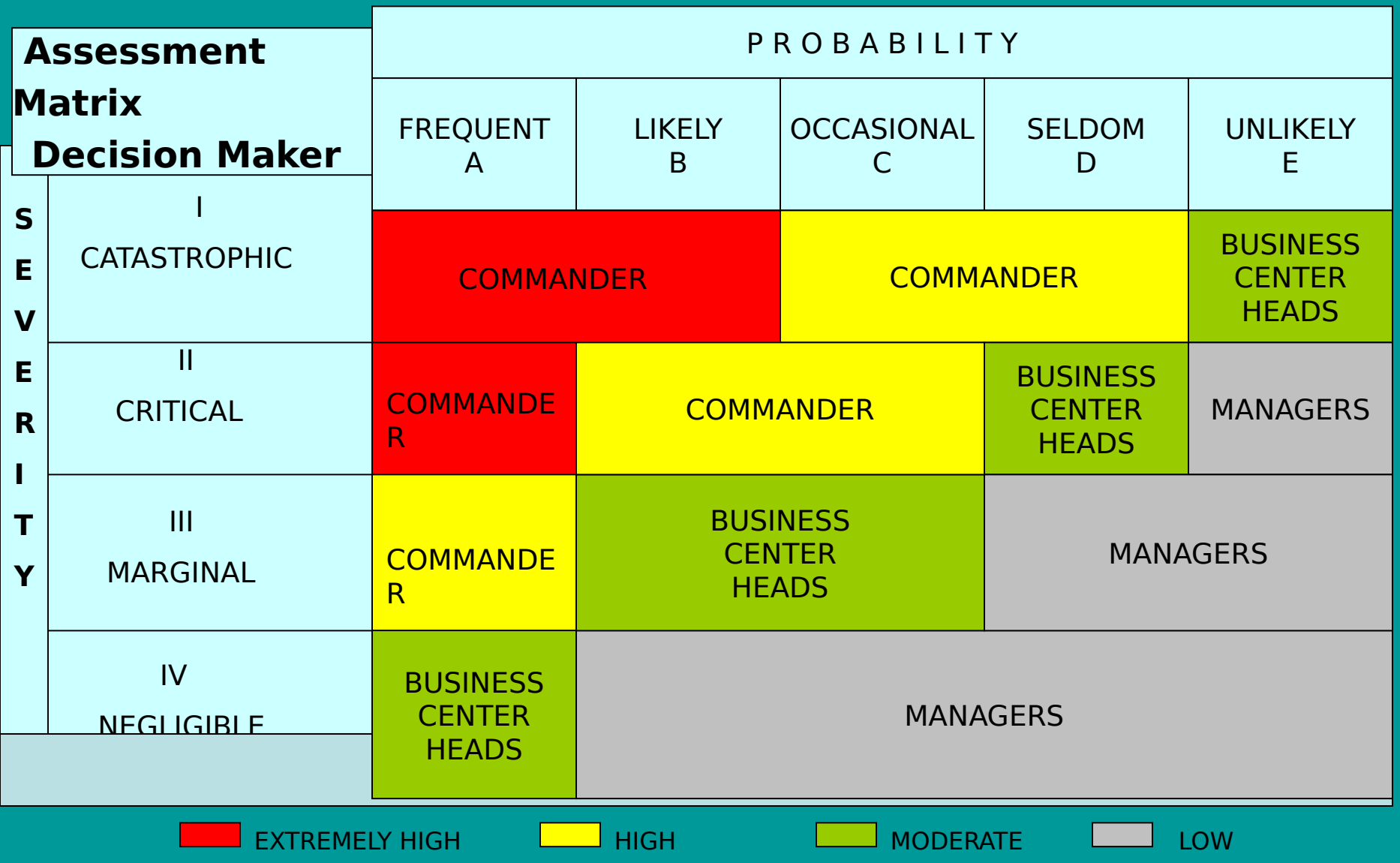
Risk option controls include: Avoidance, reduction, spreading and transference.

The overall goal of risk management is to plan tasks or design tasks that do not contain hazards. This, however, is virtually impossible: therefore, to be effective, risk management strategies must address the components of risk (probability and severity).

The risk decision matrix should be used to determine the risk decision maker as shown on the next chart.

The risk decision maker (at the appropriate mgmt level) selects the control options after discussing all possible controls. Decisions are made with awareness of hazards and how important hazard control is to the success or failure of the task (cost vs. benefit).

Determining the Decision Maker



Practice Scenario Continued – Step 3

Moving a CO2 Cylinder

You need to move a CO2 cylinder (approx.. wt. 200 lbs.) from the storage locker outside the powerhouse to a Main Unit Generator located one floor away. The cylinder will need to be transited down two flights of stairs and carried 150 ft. for installation.

You already identified the hazards (step 1) and assessed each hazard (step 2), now you need to develop controls and make some risk decisions (step 3).

Practice Scenario Continued – Step 3

Develop Controls & Make Decisions

What Controls Would you Develop?

Hazard	Risk	Control
• Lifting	H	??
• Rigging	M	??
• Missile	H	??
• Slip, Trip, Fall	H	??
• Equipment	L	??

Practice Scenario Continued – Step 3

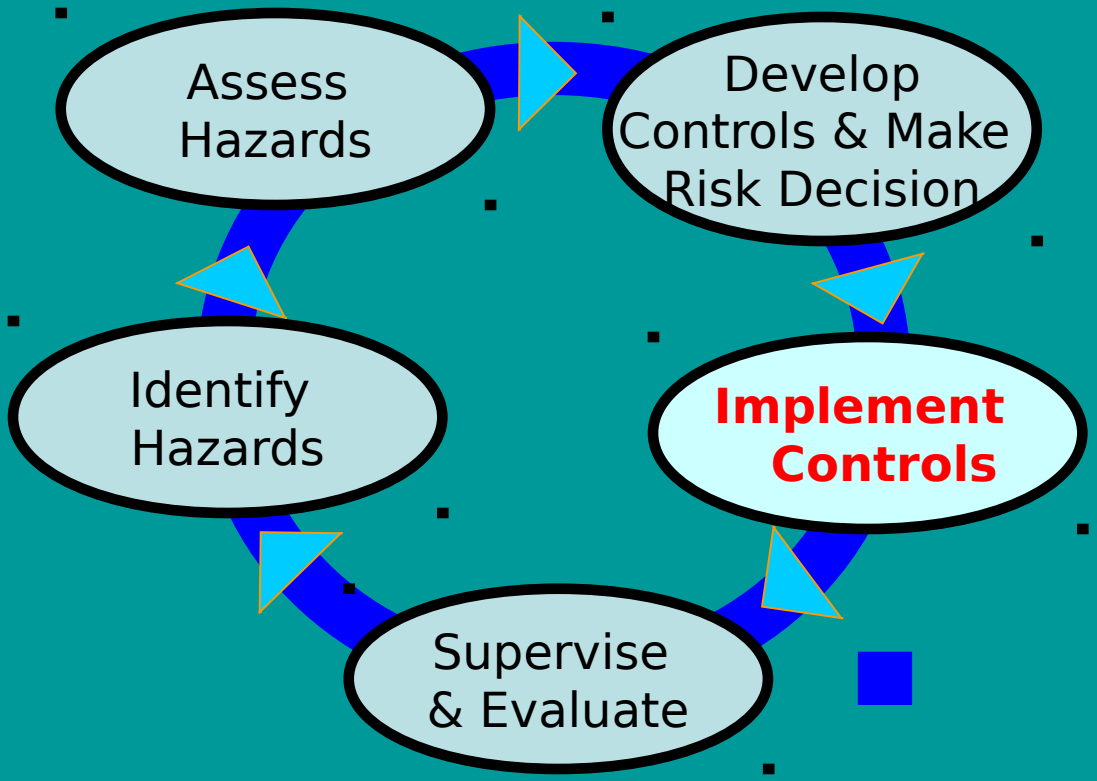
Develop Controls & Make Decisions

The following controls were developed:

Hazard	Risk	Control
• Rigging/Support	M	• Proper lifting techniques. Proper lifting equipment. • Proper rigging techniques. Appropriate rigging/support devices.
• Missile	H	• Proper handling of missiles.
• Slip, Trip, Falls	H	• Good Housekeeping. Clear aisles and walking surfaces.
• Equipment	L	• Proper operating procedures. Well maintained equipment.

Step 4 - Implement Controls

Step 4 - Implement Controls



IN THIS STEP, RISK DECISIONS ARE MADE AND CONTROLS ARE IMPLEMENTED <u>BEFORE</u> STARTING THE TASK.

Implementing Controls

Implement controls that eliminate the hazards or reduces the risks.

The decision maker must allocate resources to control risk.

For each identified hazard, implement resourced controls that will reduce the risk to an acceptable level (cost vs. benefit).

The best control will be consistent with mission objectives and optimum use of available resources.

Inform the personnel in the system of the risk management process of the results and subsequent decisions.

Implementing Controls

Make implementation clear!!!! Provide a road map for implementation, a vision of the final product and describe what successful implementation will look like.

Establish accountability by making clear who should be responsible for the implementation of the control measure.

Shown on the next slide are some examples of implementation methods.

Examples of Implementation Methods:

- Regulations and Policy Letters
- Standard Operating Procedures (SOPs)
- Tool-Box Safety Meetings
- Activity Hazard Analysis
- Training
- Exercises

Practice Scenario Continued – Step 4

Moving a CO2 Cylinder

You need to move a CO2 cylinder (approx.. wt. 200 lbs.) from the storage locker outside the powerhouse to a Main Unit Generator located one floor away. The cylinder will need to be transited down two flights of stairs and carried 150 ft. for installation.

You already identified the hazards (step 1), assessed each hazard (step 2), and developed controls and made decisions (step 3), now you need to implement the controls.

Practice Scenario Continued – Step 4

Implementing Controls

How Would You Implement the Controls?

Hazard	Risk	Implementation Method
~~Lifting~~	~~H~~	?
• Rigging/Support	M	?
• Missile	H	?
• Slip, Trip, Falls	H	?
• Equipment	L	?

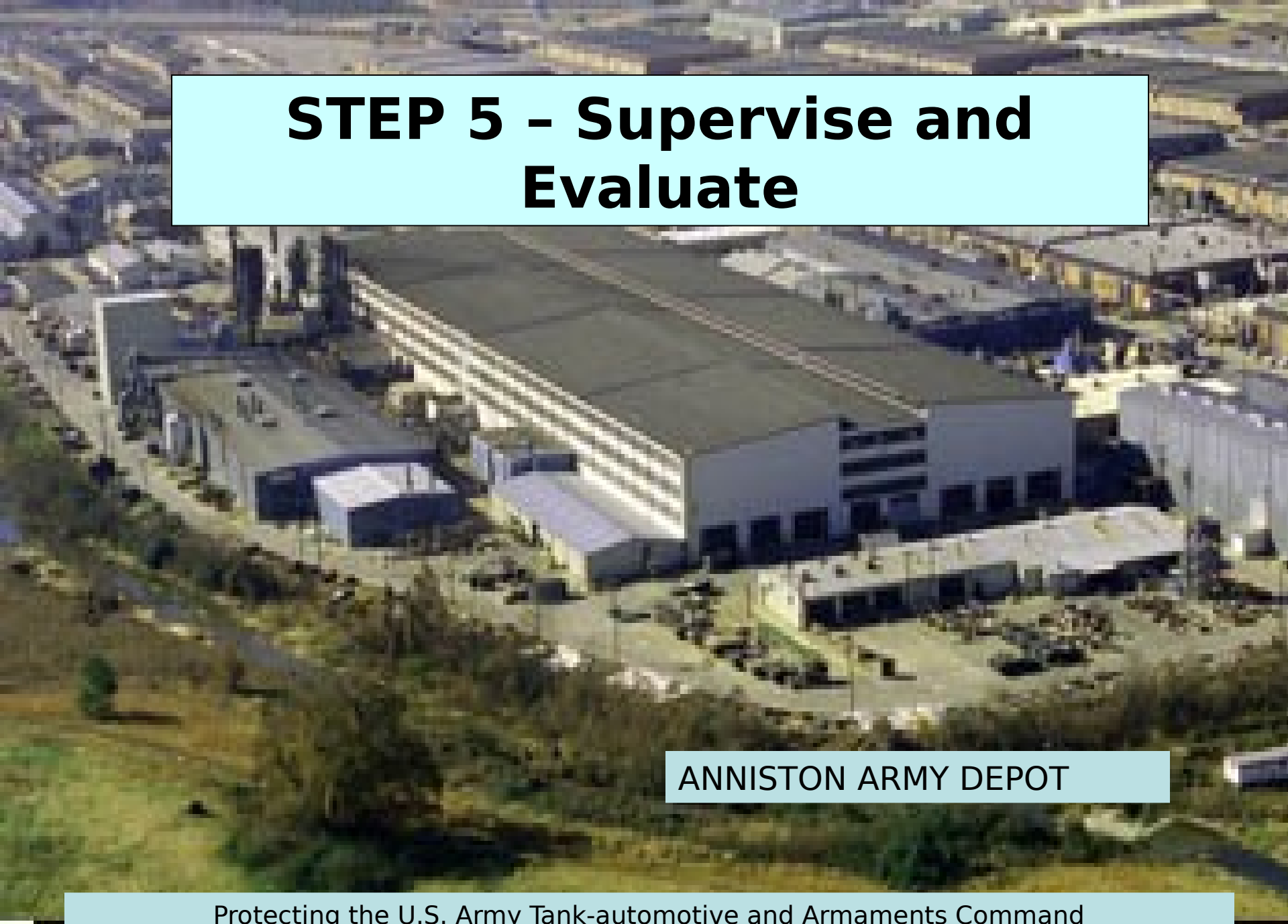
Practice Scenario Continued – Step 4

Implementing Controls

The following Implementation Methods were selected:

Hazard	Risk	Implementation Method
Lifting	H	• Publish proper lifting techniques. Furnish proper lifting equipment.
• Rigging/Support	M	• Publish SOP for rigging. Assure all associates are properly trained/certified.
• Missile	H	• Publish SOP for handling missiles. Train associates in handling procedures.
• Slip, Trip, Falls	H	• Establish & enforce good housekeeping standards. Removes objects from aisles, walking surfaces; reduce clutter.
• Equipment	L	• Assure all associates are properly trained/certified. Conduct routine preventative maintenance on equipment.

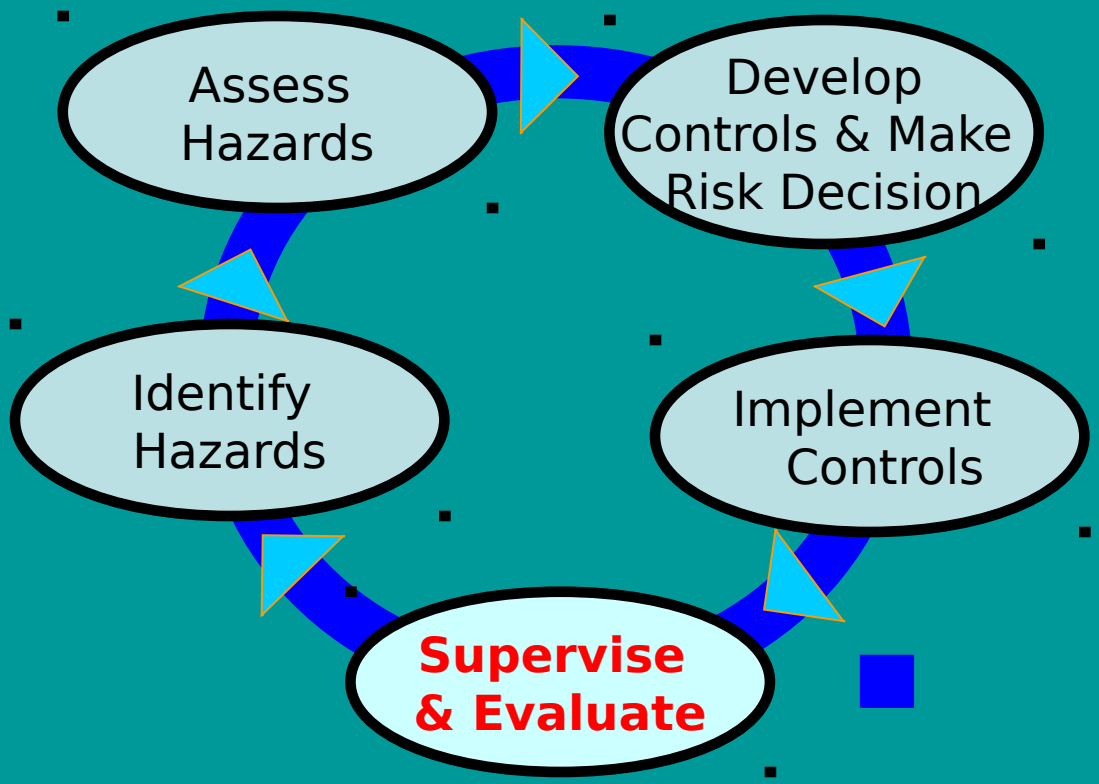
STEP 5 – Supervise and Evaluate



ANNISTON ARMY DEPOT

Protecting the U.S. Army Tank-automotive and Armaments Command
Through Risk Management

Step 5 - Supervise & Evaluate



In this step we monitor the operation to ensure:

- **The controls are effective and remain in place.**
- **Changes which require further risk management are identified.**
- **Action is taken when necessary to correct ineffective risk controls and reinitiate the risk management steps in response to new hazards.**

Supervise & Evaluation Objectives

- Perform to and enforce the established standards and controls.

- Evaluate the effectiveness of controls and adjust/update controls and control methods as required.

Supervise & Evaluation Defined

Supervise - Monitor the operation to ensure:

- The controls are effective.
- Changes which require further risk management are identified.
- Action is taken when necessary to correct ineffective risk controls.

Evaluation - Determine the answer to the question, “Did the control measure in fact control the associated hazard?” An effective evaluation will:

- Identify whether the actual cost to accomplish the mission is in line with expectations.
- What effect the control measure had on the mission performance.

Supervision & Evaluation Methods

- You should continually evaluate the effectiveness of controls implemented. Adjust or update them as necessary.
- Once the operation is complete evaluate overall effectiveness of the work to determine if changes and / or additional resources are needed.
- Supervisors need to identify whether the results of the controls are in line with expectations. The supervisor will also need to determine what affect the control measure had on mission performance.
- Seek feedback from within the organization to ensure that the control measure or corrective action was effective.
- Document accidents. Proper documentation allows for review of the risk decision process to see where errors might have occurred.

REFERENCES

AR 385-10

Department of the Army, Army Safety Program. Feb 00.

AR 385-10 TACOM Suppl1, Army Safety Program

http://www.tacom.army.mil/safety/ts385-10.doc

5-Step Risk Management Recap

Recap

5-Step Risk Management

RISK MANAGEMENT IS A 5-STEP PROCESS THAT PROVIDES A LOGICAL AND SYSTEMATIC MEANS OF IDENTIFYING AND CONTROLLING RISK.

RISK MANAGEMENT IS NOT A COMPLEX PROCESS, BUT IT DOES REQUIRE INDIVIDUALS, SUPERVISORS, AND UPPER MANAGEMENT TO SUPPORT AND IMPLEMENT THE BASIC PRINCIPLES, ALONG WITH THE DISCIPLINE TO APPLY THOSE PRINCILES ON A CONTINUING BASIS.

RISK MANAGEMENT ENSURES THAT ALL TACOM ASSOCIATES HAVE A VOICE IN THE CRITICAL DECISIONS THAT DETERMINE SUCCESS OR FAILURE IN ALL OUR ACTIVITIES.

Recap

The Risk Management 5-Step Process

Recap

Identifying and Assessing Hazards

Hazards must first be identified (step1), then each must be assessed (step 2) and assigned a rating to establish the risk based on probability and severity of occurrence.

Assessment Tool

Use the Risk Assessment Matrix to determine the level of risk.

The risk assessment Index is where the probability and severity intersect on the matrix chart.

RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY: FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

Recap

Plan, Control and Monitor Risk

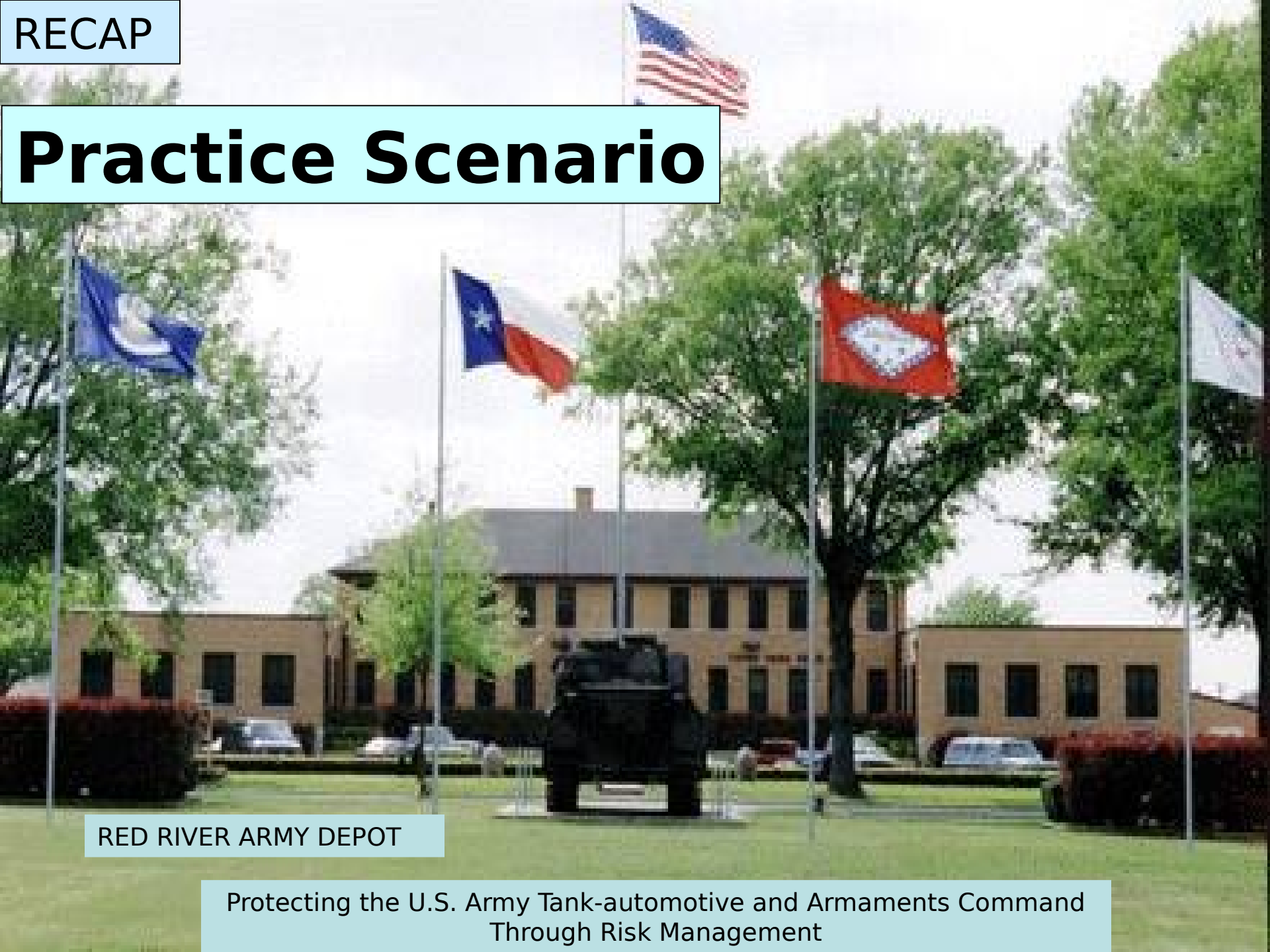
Plan or design tasks to address the components of risk (probability and severity) and establish appropriate controls measures (Step 4). Risk option controls include: Avoidance, reduction, spreading and transference.

Implement controls (Step 4) that will reduce the risk to an acceptable level. The best control will be consistent with mission objectives and optimum use of available resources.

Tasks must continually be supervised and evaluated (Step 5) to ensure the enforcement and effectiveness of established standards and controls. Make adjustments as necessary to control risk and maintain a safe work environment.

RECAP

Practice Scenario



RED RIVER ARMY DEPOT

Protecting the U.S. Army Tank-automotive and Armaments Command Through Risk Management

RECAP

Practice Scenario:

Heavy Equipment Operations at TACOM Depots

It’s June… You need to re-tool some heavy equipment at the depot. The 4th of July is around the corner… time is of the essence!!! Your boss has said, get this work done no matter what it takes. Temperatures over the last week have been in the mid-90’s.

RECAP

Practice Scenario:

Step 1. Identify the Hazards

- ?
- ?
- ?
- ?
- ?
- ?
- ?

RECAP

Practice Scenario:

Step 2. Assess the Hazards

Hazards	Risk
• Heavy Equipment Operations	H
• Noise	H
• Heat Stress	H
• Fatigue / Overexertion	H
• Slip, Trip, Falls	H
• Dust	H

RECAP

Practice Scenario:

Step 3 and Step 4 Establish and Implement Controls

- Heavy Equipment Operations
- Noise, Dust
- Heat Stress, Fatigue Overexertion
- Slip, Trip, Falls

Establish safe standard operating procedures. Assure all associates are properly trained / certified.

Establish engineering controls to minimize. Provide workers with hearing and eye protection

Increase fluid intake. Facilitate frequent rest periods. Use buddy system for heavy lifting, proper lifting devices.

Good Housekeeping enhances safety. Removes objects from aisles, walking surfaces, reduce clutter.

RECAP

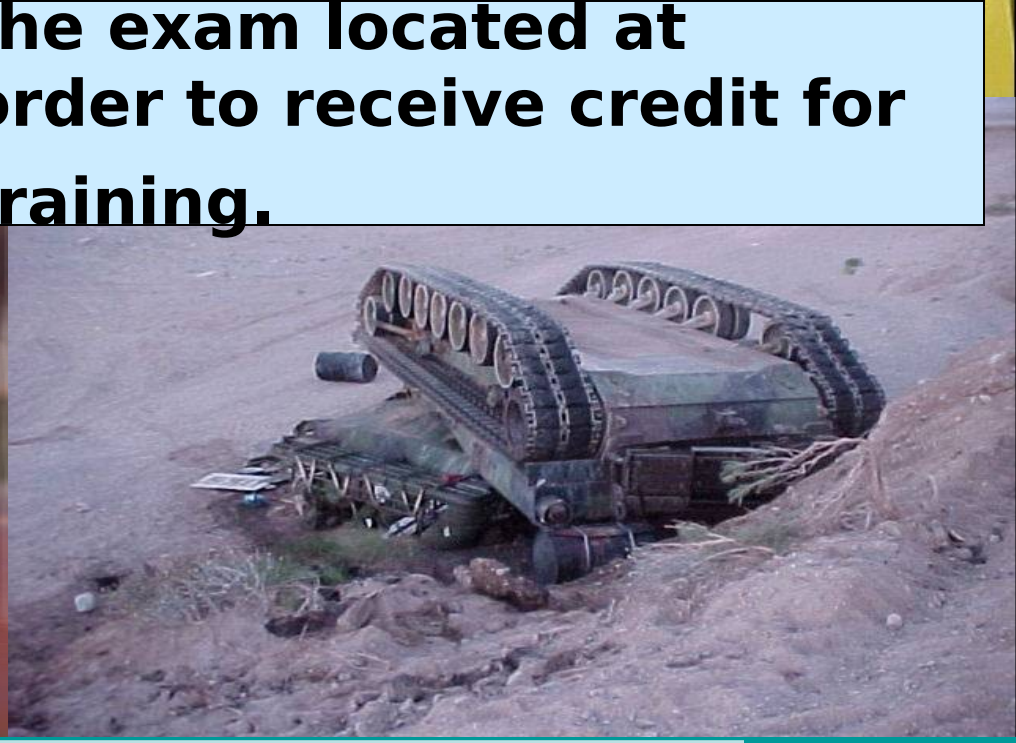
Practice Scenario:

Step 5. Supervise and Evaluate

- Monitor effectiveness of controls
- Evaluate and adjust controls as the situation changes
- Ensure personnel are familiar with their situations
- Enforce controls

"Be prepared"…It may be necessary to alter the work schedule to minimize risk factors and reduce exposure levels.

You must pass the exam located at http//riskmgt.com in order to receive credit for this training.



You have just completed U.S. Army TACOM Risk Management Training

Please proceed to the Risk Management Test

For Questions or Comments

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Protecting the U.S. Army Tank-automotive and Armaments Command Through Risk Management